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ZOOLOGY.—*A new Chinese lizard of the genus* Eumeces. LEONHARD STEJNEGER, National Museum.

The *Eumeces xanthi* which Guenther described[1] in 1889 from Ichang, province of Hupeh, was based on material collected by Pratt, the type being in British Museum. Guenther described it as related to *E. skiltonianus*, having the dorsal scales "much broader" than the lateral and ventral ones. Seven years later he identified[2] specimens obtained by the Russian explorer Potanin near the town of Lifang-fu (August, 1894) and in the valley of the river Tung (April, 1894), both localities in high altitudes in western Szechwan, as *E. xanthi*.

The Chinese skinks of this genus are so similar in general appearance and the really important characters separating the species were at that time so little understood that the original description of this species is quite insufficient to determine exactly the status of other species from the same general region. It was therefore quite natural that Dr. Barbour in receiving a single specimen from Ichang, the type-locality, should identify it as *E. xanthi*, though apparently with considerable doubt, as he carefully recorded[3] the deviations of his specimen from the original description. Having recently had occasion to study the Chinese skinks, I was favored by Dr. Barbour with the loan of this specimen and was able to show that in reality it is a young *E. elegans*.

Two specimens (nos. 66736–7) recently received from Rev. D. C. Graham by the National Museum were collected by him at an altitude of 5–6000 feet near Luting Kiao, western Szechwan, the place where the road to Tatsienlu crosses the Tung River. As this is

[1] Ann. Mag. Nat. Hist. (6) **4**: 220. 1889.
[2] Ann. Mus. Zool. St. Pétersbourg **1**: 203. 1896.
[3] Mem. Mus. Comp. Zool. Cambridge **40**: no. 4: 134. 1912.

almost certainly the identical locality whence came Potanin's specimens which Guenther himself had identified as *E. xanthi*, my first inclination was to identify them with this species, but on second consideration it was felt that the differences from Guenther's original description were too great to be reconciled. They showed some general similarity to a new species, *E. pekinensis*, recently described[4] by me from the province of Chili, 65 miles north of Peking. They differed, however, radically from the latter in the arrangement of the large temporal shields which, as I have first shown in the Herpetology of Japan (1907), is of prime systematic importance in this genus. On the other hand, the shape and relation of these shields were not recorded in the description of *E. xanthi*. I therefore had sketches prepared of the various styles of temporals represented in my series of Chinese *Eumeces*, including *E. quadrilineatus* and the Tung River specimens, and sent them, without names, to the curators in charge of the herpetological collections in British Museum and the Russian Academy of Sciences. Mr. H. W. Parker of the former, kindly sent a sketch of the type of *E. xanthi* showing the temporal shields to be identical with those of *E. quadrilineatus*, while of the latter, Mr. S. Czarewsky, returned the sketch of Graham's Tung River specimen with the notation that it "agrees entirely" with the Potanin specimens, which in addition he describes as having the median dorsal scales not broader or scarcely broader than the rest and as having on the back a median yellowish stripe. Thanks to the kindness of these gentlemen, all doubts as to the distinctness of the former have thus been cleared away, and I have no hesitation in naming and characterizing the new species as follows:

**Eumeces tunganus**, sp. nov.

*Diagnosis.*—Median dorsal scale rows not enlarged; two unpaired postmentals; a postnasal; 26 scales around the middle of the body; lower temporal of the second row with parallel upper and lower edges, the upper anterior corner cutting angularly into the upper temporal of the same row, soles nearly uniform granular with a few large tubercles near the heel.

*Type locality.*—Luting Kiao, where road to Tatsienlu crosses Tung River, western Szechwan, China; altitude 5000–6000 feet.

*Type.*—U. S. National Museum no. 66736; D. C. Graham, collector; August 9, 1923.

The type has one yellowish median dorsal stripe and two lateral ones; the smaller one (no. 66737), same locality and date, is without either dorsal or lateral stripes.

I am inclined to believe that the present species is more nearly related to *E. latiscutatus* (Hallowell) than to any of the other Chinese skinks.

[4] Occ. Pap. Boston Soc. Nat. Hist. 5: 120. July 21, 1924.

ENTOMOLOGY.—*North American Eucosminae, notes and new species (Lepidoptera).* CARL HEINRICH, Bureau of Entomology. (Communicated by S. A. ROHWER.)

In the present paper I am describing seven new species and four new varieties, adding two described species to our faunal list, reducing two species to the rank of varieties, sinking three species as synonyms, and transferring the generic position of three others. These changes are occasioned by the receipt of a large amount of additional material sent in for determination (chiefly by Dr. Wm. Barnes, E. H. Blackmore, and the Canadian National Museum) since the publication of my revision of the Eucosminae.[1]

**Strepsicrates smithiana,** Walsingham

*Strepsicrates smithiana* Walsingham, Proc. Zool. Soc. Lond., 1891: 506.

This West Indian species will have to be listed in our fauna, as Dr. Barnes has several specimens from Everglades, Florida (Reared "Apr. 8–15" and "Apr. 16–23" from larvae feeding on guava). A pair of these has been deposited in the National Collection. The males show no differences in genitalia or pattern from those of Dyar's *indentana.* The females are somewhat differently marked; *smithiana* has a narrow, rather strong shading of black scales along dorsal margin and termen of forewing, which is lacking in *indentana,* while *indentana* has a fine black streak from end of cell to apex, lacking in typical *smithiana.* Otherwise the two forms agree. I am therefore keeping the Dyar name, but reducing *indentana* to the rank of a variety.

*Alar expanse.*—12–14 mm.
*Type.*—In British Museum.
*Type locality.*—St. Vincent, British West Indies.
*Food plant.*—Guava.

**Thiodia ornatula,** new species

Palpus extending scarcely the length of the head beyond it; snowwhite. Face and forepart of head snow white; posterior part of head fuscous. Thorax blackish fuscous, more or less spotted with white; tegula blackish anteriorly, dull white behind. Forewing pale cream white marked with blackish fuscous and brown; a broken, outwardy angulate basal patch indicated by several irregular blackish fuscous lines extending from costa and dorsum, these not meeting (the patch broken longitudinally below costa); on outer half of costa four large pale brown geminate spots; a round brown apical spot and a narrow short brown streak along termen at middle; ocelloid patch consisting of two vertical metallic bars enclosing a blackish fuscous patch which expands above into a rather large blackish spot and merges into extensions of the brown geminations from costa; on dorsum bordering the inner margin of the ocelloid patch a rather large triangular blackish

[1] Bull. U. S. Nat. Mus. no. 123. 1923.

patch; cilia brownish, paler toward costa and with a narrow dark fuscous basal band above tornus; forewing, otherwise, of the whitish ground color; termen concave; veins 3, 4, and 5 somewhat approximate at termen. Hindwing pale smoky fuscous; cilia paler with a dark basal band; veins 3 and 4 short stalked.

Male genitalia similar in shape to those of *essexana* Kearfott, but slightly smaller and with neck of harpe more heavily haired.

*Alar expanse.*—12.5–15 mm.

*Type.*—In collection Barnes.

*Paratypes.*—Cat. no. 27247 U. S. N. M. Also in American Museum, Canadian National, and Barnes collections.

*Type locality.*—Oak Station, Pennsylvania.

*Food plant.*—Unknown.

Described from male type, 19 male and 1 female paratypes from the type locality bearing dates from June 21 to Aug. 15 (*F. Marloff*); 1 female paratype from New Brighton, Pennsylvania ("VII–20–07"); 1 female paratype from Wyoming County, Pennsylvania (*W. D. Kearfott*, "VI–17–06"); 3 male and 1 female paratypes from Pittsburgh, Pennsylvania (*H. Engel*, "VI–25–08"); 1 male paratype from Essex County Park, New Jersey (*Kearfott*, July 22); 1 male paratype from Plummer's Island, Maryland (*Busck*, Aug. 1903); and 1 male paratype from Chicago, Illinois (Sept. 1900). These specimens had been determined by Kearfott as *Laspeyresia gallaesaliciana* Riley and were in the Barnes and American Museum collections under that name.

A very distinct species, resembling *Epinotia nigralbana* Walsingham in color, and pattern, and like no other *Thiodia*.

**Thiodia insignata,** new species

Palpus extending the length of the head beyond it; greyish fuscous; inner side white. Face, head, and thorax greyish fuscous. Forewing whitish grey with dark greyish fuscous pattern marking and an ochreous shade below apex; a complete outwardly angulate dark basal patch further out on dorsum than on costa and with apex at vein 1b; from mid costa to vein 1b below end of cell a dark slanting half fascia from the end of which a very faint dark shade extends upward to sub apical costal spot; on dorsum near tornus and opposite extremity of fascia, a similar colored triangular dark spot; costa beyond middle with four greyish fuscous spots separated by white germinate dashes; ocelloid patch a group of seven black dots separated by three very faint vertical metallic bars; area above, suffused with ochreous; termen straight and decidedly slanting; veins 3, 4, and 5 not approximate at termen; cilia sordid whitish with a dark median shade. Hind wing pale smoky fuscous; cilia paler, with a broad dark median band; veins 3 and 4 united.

Male genitalia similar to those of *octopunctana* Walsingham.

*Alar expanse.*—19–20 mm.

*Type.*—In collection Barnes.

*Paratype.*—Cat. no. 27248 U. S. N. M. Also in American Museum.

*Type locality.*—Silverton, Colorado.

*Food plant.*—Unknown.

Described from male type and 1 male paratype from the type locality ("July 8–15" and "Aug. 1–7") and 1 male paratype from Chimney Gulch, Golden, Colorado (*Oslar*). I have also before me two males from Iditarod, Alaska ("June 22 and July 7, 1918," *A. Twitchell*) which appear to be the

same species. They are similar in color, markings and structure except that the dark shade connecting end of outer semifascia and subapical costal spot of forewing is darker and the apex of cucullus is a trifle more pointed. They possibly represent a distinct local race; but for the present may as well go under this name.

Closest to *columbiana* Walsingham; with similar pattern, but larger and darker and with different genitalia; the costa of harpe is straighter and the apex of cucullus more distinctly rounded.

**Thiodia kokana** (Kearfott)

*Eucosma kokana* Kearfott, Trans. Amer. Ent. Soc. **33**: 29. 1907.
Barnes and McDunnough, Check List Lepid. Bor. Amer. no. 7006, 1917.
*Eucosma chortaea* Meyrick, Ent. Mo. Mag. **48**: 35. 1912.
*Hystricophora kokana* Heinrich, U. S. Nat. Mus. Bull. 123, 259. 1923.
*Thiodia sororiana* Heinrich, U. S. Nat. Mus. Bull. 123: 263. 1923.

Mr. Meyrick has suggested to me the above synonomy which I was inclined to doubt, as the type (♀) of *kokana* and that of *sororiana* (♂) showed some slight differences in the shape of termen and in the approximation of veins 3, 4 and 5 on termen of forewing. Recently, however, we have received from Miss Annette F. Braun a pair (♂ and ♀) of authentic *kokana* from the type locality (Cincinnati, Ohio). These specimens showed the differences to be purely sexual and the tentative reference of *kokana* to *Hystricophora* an error.

**Thiodia infrimbiana candidula,** new variety

A pale Eastern race of *infimbriana*, distinguished by its snow white color and unmarked white forewing cilia. It lacks the olivasceous overcast of typical *infimbriana*. There is no trace of the semicircular dark shade above the ocelloid patch, so conspicuous in the latter, and the markings are fainter, in some specimens almost obsolete. The harpe of the male genitalia also has a cucullus more sharply pointed at apex.

*Alar expanse.*—15–18 mm.

*Type.*—In Canadian National Collection.

*Paratype.*—Cat. no. 27249 U. S. N. M. Also in Canadian National, American Museum, and Barnes collections.

*Type locality.*—Aweme, Manitoba.

*Food plant.*—Artemesia.

Described from male type 7 male and 1 femae paratypes from the type locality collected by *Norman Criddle* ("28–VII–1921", "3–VII–1921," "15–VIII–1921" and "23–VII–08"); 2 female paratypes from Cartwright Manitoba (*E. F. Heath*); and one male paratype from St. Anthony Park, Minnesota (labeled, "ties leaves of *Artemesia ludovicana*, Aug. 6").

This name will apply to the Manitoba and other eastern specimens which we have hitherto referred to *infimbriana* Dyar. Typical *infimbriana* is apparently limited to the Pacific coast.

**Thiodia segregata,** new species

Palpus, face, and head dull white; palpus extending the length of the head beyond it; grey toward apex. Thorax and gound color of forewing creamy or greyish white, due to a greyish ochreous shading at tips of scales; a pale rusty ochreous basal patch and median fascia and a similar dark shade toward apex faintly indicated; in some specimens the basal patch is fairly clear and angulate, with the apex at vein 1b, and farther out on dorsum than on costa; in others it is indicated only by a faint median or dorsal shade; median fascia a faint, straight, rather narrow band from mid costa to outer fourth of dorsum; ocelloid patch weak, consisting of three very faint, vertical metallic bars enclosing a varying number of small black dots, sometimes as many as nine, often altogether obsolete; termen concave; veins 3, 4, and 5 somewhat approximate at termen; cilia whitish, finely dusted with blackish grey. Hindwing pale smoky fuscous; cilia pale, with a dark basal band; veins 3 and 4 united.

Male genitalia as in *festivana* Heinrich.

*Alar expanse.*—11–12 mm.

*Type.*—In collection Barnes.

*Paratypes.*—Cat. no. 27250 U. S. N. M. Also in American Museum and Barnes collections.

*Type locality.*—Monachee Meadows, Tulare County, California.

*Food plant.*—Unknown.

Described from male type, 43 male and 2 female paratypes from the type locality (8000 ft., "July 26–23" and "Aug. 8–15").

Similar to *festivana* Heinrich; but paler and less distinctly marked. Possibly a local race of that species.

**Eucosma giganteana minorata,** new variety

A food plant variety, differing from typical *giganteana* in size and habit. The color and pattern are the same; but the moths are much smaller and the genitalia (male and female) are only half the size of those of *giganteana*, tho similar in shape and structure. The larvae of typical *giganteana* are borers in the roots of *Sylphium perfoliatum* while those of the new variety feed in the flower heads of *Sylphium gracile*. Such a difference in food habit within a species is not astonishing in the Olethreutidae, and in this case does not, I think, justify more than varietal separation.

*Alar expanse.*—17–19 mm.

*Type.*—Cat. no. 27251 U. S. N. M.

*Type locality.*—Liberty, Texas.

*Food plant.*—*Sylphium gracile.*

Described from male type and one male paratype from the type locality (July 29, 1922 and July 16, 1923); and one female paratype from Stowell, Texas (July 5, 1923) all reared by L. J. Bottimer of the Federal Horticultural Board.

**Gypsonoma parryana** (Curtis)

*Argyrotosa parryana* Curtis, Appendix, Ross Second Arctic Voyage, 1835, p. 75.

Omitted from my revision of the Eucosminae. Similar to *fasciolana* in pattern and genitalia; but with outer dark fascia of forewing disappearing before dorsum and with aedoeagus longer and more slender.

There are several specimens from Alaska in the Canadian National Collection.

*Alar expanse.*—18–19 mm.
*Type.*—Location unknown.
*Type locality.*—Arctic America.
*Food plant.*—Unknown.

### Gypsonoma nebulosana (Packard)

*Grapholitha nebulosana* Packard, Proc. Bost. Soc. Nat. Hist. **11**: 61. 1866.
Heinrich, U. S. Nat. Mus. Bull. no. 123: 261. 1923.
*Epinotia nebulosana* Fernald, in Dyar List N. Amer. Lepid., no. 5231. 1903.
*Enarmonia nebulosana* Barnes and McDunnough, Check List Lepid., no. 7155. 1917.

Through the courtesy of Nathan Banks I have been able to make a genitalia slide of Packard's type and place this species. It is nearly unicolorous brown, with genitalia like those of *fasciolana* Clemens; possibly a suffused dark variety of the latter, but without any trace of the whitish anti-median and post median areas so conspicuous on *fasciolana*.

I would correct here an error in my *Revision of the North American Eucosminae*. The actual type (*Packard* no. 607; M. C. Z. type no. 14312) is at Cambridge and not in the Fernald collection as I stated. Fernald's specimen is a paratype. There is an authentic specimen (♂) from Hopedale, Labrador ("27–VII–1922") in the Canadian National Collection.

*Alar expanse.*—19 mm.
*Type.*—In Museum Comparative Zoology.
*Type locality.*—Strawberry Harbor, Labrador.
*Food plant.*—Unknown.

### Gypsonoma adjuncta, new species

Palpus, face and head white, dusted with grey. Thorax dark grey dusted with white. Forewing dark (blackish) grey with a white patch, somewhat streaked with grey, on costa beyond base, an irregular (more or less obscured) white blotch on mid dorsum and some white dusting near costa on outer third; an obscure blackish dot at end of cell and a faint black dot at apex; cilia grey dusted with white at tornus. Hind wing dark smoky fuscous; cilia paler, with a very slightly darker basal band.

*Alar expanse.*—12–15 mm.
*Type.*—Cat. no. 27252 U. S. N. M.
*Paratypes.*—In Canadian National and Blackmore collections.
*Type locality.*—Toronto, Canada.
*Food plant.*—Unknown.

Described from male type and one male paratype from the type locality ((Parish, "1–13" and "6–7–16") received through Edward Meyrick and one paratype from Victoria, British Columbia (*W. H. Carter*, "26–VI–21," Blackmore no. 473).

Similar to the European *incarnana* Haworth, but with anti median white area not a complete pale fascia (dark basal patch fusing at least at middle with median dark scaling), with post median area more heavily dusted (almost suffused) with grey scaling, with costal hook of harpe of male genitalia much shorter, and with basal opening of harpe larger and more evenly rounded. Possibly an American race of *incarnana*.

**Proteoteras implicata,** new species

Forewing olivaceous green, marked with black or blackish fuscous; an outwardly angulate, dark basal patch faintly indicated by irregular lines of blackish scales beyond base, strongest on basal fourth of costa; costa finely strigulated; from just beyond middle of costa a dark outwardly slanting half fascia more or less dusted with black, extending to upper outer edge of cell; from end of this a fine black line extending out and up toward apex and terminating in a rounded black spot before apex. Hind wing brownish fuscous; cilia slightly paler, with a dark basal band.

In male some fine black scaling on upper side of hind wing, on base of cell, and between veins 1a and 1b at extreme base of wing; on under side of hindwing along costa from base to outer fourth, and a very little along lower vein of cell at base; on under side of forewing on basal third of costa and on upper and below lower veins of cell at extreme base; also on extreme posterior lateral margins of thorax and on outer side of hind tibia and outer surfaces of all femora.

Male genitalia with 2 or 3 heavy, flat spines from outer surface of harpe, and with entire neck of harpe from outer margin of basal opening to cucullus, densely spined; socii long and rather slender, with short hair pencils; general shape as in *aesculana*.

*Alar expanse.*—11–15 mm.

*Type.*—In Barnes collection.

*Paratype.*—Cat. no. 27253 U. S. N. M. Also in American Museum and Barnes collections.

*Type locality.*—Everglades, Florida.

*Food plant.*—"Bush Ash."

Described from male type, 3 male and 4 female paratypes from the type locality labeled, "ex larva in stems of Bush Ash, Apr. 16–23"; and one male paratype from La Chorrera, Panama (*Busck*, May 1912).

Similar to *aesculana* Riley; but with different genitalia and different sex scaling in male.

**Exentera senatrix,** new species

Palpus, face, head and thorax dark ashy grey. Forewing grey, the pale areas ashy grey with a faint bluish tint, the dark markings blackish fuscous; a dark basal patch somewhat broken on dorsum at base by pale scaling and fusing above cell with a similar dark shade from mid costa; at lower outer angle of cell a small blotch of blackish scaling; outer third of costa with three obscured dark geminations; costa otherwise very faintly marked with fine pale gemination; ocelloid patch obscure, two vertical bars enclosing 3 or 4 very short black dashes; forewing, otherwise, ashy blue grey; termen notched at veins 3–5; veins 3, 4 and 5 closely approximate at termen; 7 and 8 short stalked or connate; cilia dark ashy grey, paler toward tornus. Hindwing pale smoky fuscous; cilia paler, with a dark basal band.

Male genitalia similar to those of *improbana* Walker.

*Alar expanse.*—19–21 mm.

*Type.*—In Barnes collection.

*Paratypes.*—Cat. no. 27254 U. S. N. M. Also in American Museum and Barnes collections.

*Type locality.*—Paradise, Cochise County, Arizona.

*Food plant.*—Unknown.

Described from male type, one male and 7 female paratypes from the type locality, dated, "Mch. 8–15" and Apr. 1–7").

A rather striking species with very narrow forewings. Close to *improbana* but apparently distinct.

**Epinotia cruciana** (Linnaeus)

Two species, *Sciaphila direptana* Walker and *Sciaphila vilisana* Walker, described[2] from St. Martin's Falls, Albany River, Hudson Bay, were omitted from my revision. Judging by the descriptions and Knight's figures in the American Museum they are both synonyms of *E. cruciana* (Linnaeus) and should for the present, at least, be so referred.

**Epinotia cruciana lepida,** new variety

A small dark reddish brown variety with pale anti and post median metallic bands more or less obscured. Palpus sordid whitish, shaded with fuscous towards apex. Face and head whitish ochreous shaded with fuscous. Thorax and forewing dark reddish brown, in some specimens with a somewhat leaden luster on extreme base of wing and over thorax; from costa at ⅓ to mid dorsum a pair of narrow, irregular metallic lines, more or less obscured and sometimes enclosing a pale ochreous shading; on outer third of costa three or four whitish or ochreous geminate marks (very faint in some specimens) from which extend three irregular nearly parallel metallic lines, two to tornus, and one to termen below apex, the last often obsolete or much obscured; cilia leaden fuscous with a pale shade toward apex. Hindwing smoky fuscous; cilia paler, with a dark basal band.

Genitalia as in typical *cruciana* except somewhat smaller.

*Alar expanse.*—11.5–12 mm.

*Type.*—In Barnes collection.

*Paratypes.*—Cat. no. 27255, U. S. N. M. Also in American Museum and Barnes collections.

*Type locality.*—Mount Washington, New Hampshire.

*Food plant.*—Unknown.

Described from male type, 21 male and 2 female paratypes from the type locality ("4000 ft. "July 24–31" and "Aug. 1–7"). A distinct, local, dwarfed variety.

**Epinotia cruciana russata,** new variety

A unicolorous form with sordid whitish ochreous palpus and head, and rust red thorax and forewing. In some specimens there is a very faint indication of a darker semi-fascia from mid costa to tornus, but in most this is not distinguishable. The leaden streak along costa from base to middle,

[2] Cat. Lepid. Heter. Brit. Mus. **28**:338. 1863.

so characteristic of the species, is strongly marked; forewing cilia faintly shaded with leaden fuscous; a short, narrow, vertical leaden bar above tornus. Hindwing pale smoky fuscous, somewhat whitish towards base; cilia whitish, with a dark basal band and a faint dark median shade.

Genitalia as in typical *cruciana*.

*Alar expanse.*—15–16 mm.

*Type.*—Cat. no. 27256 U. S. N. M.

*Paratypes.*—In National Museum and Blackmore collections.

*Type locality.*—Victoria, British Columbia.

*Food plant.*—Unknown.

Described from male type and 2 male paratypes from the type locality (*E. H. Blackmore*, "24–VI–23," "25–VI–23" and "21–VII–23"); and one male and one female paratype from Brentwood, British Columbia ("14–VII–23" and "30–VI–23," *Blackmore*).

**Epinotia seorsa**, new species

Antennae whitish; in male finely pubescent. Palpus triangular, strongly porected, extending three times the length of the head beyond it; outer side purplish red or reddish ochreous; upper edge and inner side sordid whitish, sometimes with a slight greyish dusting. Face and head sordid whitish. Thorax rust or rosy red somewhat shaded with sordid ochreous white at middle. Forewing rust color (in some specimens red rather than ochreous, in others quite pale) with a faint rose purple suffusion towards apex; on dorsum near base an obscure outwardly projecting angulate semi-lustrous leaden or purplish fuscous patch, forming the dorsal remnant of an incomplete basal patch; from mid costa to just beyond middle of dorsum a similar colored fascia, rather broad for most of its length but sharply tapering at costal and dorsal extremities; beyond this a narrow outwardly curved dark line from outer third of costa to tornus; and beyond this an occasional faint obcure dark line or two from costa, disappearing near termen; in some specimens there is an irregular faint pale shading along dorsum from base to outer fifth, but this is normally lacking; cilia rosy or rust color dusted with leaden scales towards tornus. Underside of forewing with pale costa and with rest of wing more or less suffused with leaden scaling; the pattern markings, especially the fascia and post median line, darkest and rather strongly marked. Hindwing whitish mottled with fuscous; cilia whitish, with dark basal band.

Male genitalia with uncus strong, undivided, tip slightly swollen; harpe as in *infuscana* Walsingham but not so broad towards base; aedoeagus moderately long, straight and slightly tapering toward apex; cornuti a dense cluster of slender spines half as long as aedoeagus.

*Alar expanse.*—18–20 mm.

*Type.*—Cat. no. 27257 U. S. N. M.

*Paratypes.*—In National Museum, Canadian National Museum, Blackmore, and Barnes collections.

*Type locality.*—Vavenby, British Columbia.

*Food plant.*—Unknown.

Described from male type ("16–IX–1922, *Theo. A. Moilliet, Blackmore* no. 145"); one male and one female paratype from Victoria, British Columbia ("10–9–03" and "27–9–03"); one female paratype from Duncans, Vancouver Isl., ("22–9–12," *Hanham*); one female paratype from Quamichau Lake, Vancouver Island (*Hanham, "Blackmore* no. 665); one male paratype from

Truckee, California ("Oct. 8–15"); and one female paratype without locality label but bearing Blackmore's no. 876 and presumably from British Columbia.

A distinct species close to *septemberana* Kearfott and *vagana* Heinrich.

**Hystricophora taleana** (Grote)

*Grapholitha taleana* Grote, Can. Ent. **10**: 54. 1878. Heinrich, U. S. Nat. Mus., Bull. no. 123: 260. 1923.
*Thiodia taleana* Fernald, in Dyar List N. Amer. Lepid., no. 5182. 1903.
*Eucosma taleana* Barnes and McDunnough, Check List Lepid, Bor. Amer., no. 7071. 1917.

Under Grote's name the Canadian National Collection has several specimens from Aweme, Manitoba, agreeing with specimens from Kansas and Iowa which we had under *ochreicostana* Walsingham. If the determination is correct—and there seems no good reason to doubt it—*ochreicostana* and *taleana* are conspecific. Walsingham's name, however, may be retained as a racial designation for the Rocky Mountain and Western specimens, as these differ somewhat in both pattern and genitalia from those from the plains country; *ochreicostana* has broader harpes than *taleana* and a yellow shading on base of costa of forewing lacking in the latter form. Otherwise the genitalia and patterns agree. I am keeping *ochreicostana*, therefore as a variety of *taleana*.

*Alar expanse.*—15–18 mm.
*Type.*—In British Museum.
*Type locality.*—Illinois.
*Food plant.*—Unknown.

## PROCEEDINGS OF THE ACADEMY AND AFFILIATED SOCIETIES

### THE BIOLOGICAL SOCIETY

#### 664TH MEETING

The 664th meeting was held in the lecture hall of the Cosmos Club March 15, 1924, at 8 p.m., with Vice President OBERHOLSER in the chair and 34 persons present.

Under *Short Notes*, H. C. SKEELS exhibited a copy of the recently published "Standardized Plant Names" and inquired whether the practice followed in that work of ending all personal specific names in the genitive with a single *i* was likely to be adopted by botanists generally. The subject was discussed by Messrs. WETMORE, COVILLE, OBERHOLSER, and HITCHCOCK. Dr. OBERHOLSER stated that the contraction of the termination to a single *i*, which was followed at one time by the A.O.U., has now been abandoned by that body.

R. W. SHUFELDT read letters from foreign ornithologists referring to the specimen of *Archaeopteryx* in the Berlin Museum and to specimens of the Labrador Duck.

S. F. BLAKE reported that a flock of Purple Grackles, numbering between 3000 and 5000, is roosting at night in the southeast corner of the Soldiers'

Home grounds. R. W. SHUFELDT reported that during the winter a number of frozen Starlings had been brought to him from their roosting place in the southwest corner of the Soldiers' Home grounds.

F. V. COVILLE: *Grossularia echinella, a new species of gooseberry from Florida* (illustrated by specimens). The speaker described his discovery of a new species of *Grossularia* a few weeks ago in northern Florida. This plant, which is related to *G. curvata*, but very distinct, is the first species of the genus to be found in Florida.

O. E. SETTE: *Conservation studies on California sardines.* The economic problems facing the world with its ever increasing population consist largely of the production of foods and the development of the energy needed to make them available to the consumer. The production of foods is dependent upon the productivity of the soil, the forests, and the fisheries, and it is the conservation of these resources that is dependent entirely upon the biologist for the information that proper administration requires.

In the case of the California sardine fishery, the problem is to administer the resources in such a way that the interest only is used, leaving the capital intact. The program of the state is that of allowing unlimited exploitation at the same time that a competent scientific staff is collecting and analyzing data which should determine the effect of such commercial fishing. This consists of collecting such statistics on landings and units of gear employed and in the analyzing of them in such a fashion as will show the return per fishing unit from year to year. Supplementing this, the staff is making such studies as will allow the distinction between natural fluctuations in abundance and those fluctuations due to the intensity of commercial fishing. These consist of studies in age and rate of growth. The size-frequency methods are being used instead of the more common method of scale determinations. This is done because the scales of the sardine in California are quite illegible, and the size-frequency constitutes a method into which personal interpretation does not enter, and at the same time provides a vast amount of material on the size-composition of the population, which is useful in the determination of the existence of such phenomena as size or age dominance. The present indications are that the size-dominance is present, though to a less degree than was found in the case of the Norwegian sea herring.

These studies have also had a by-product importance to the trade, namely, that of predicting sizes which will be present in large portions in future years. If allowed to proceed to its natural conclusion, this program will evaluate most of the factors in the life history of the sardine and will be a contribution of great importance in maintaining this and other fishery resources.

O. P. HAY: *Distribution of vertebrates in the Pleistocene of North America* (illustrated). The speaker outlined the stages into which the North American Pleistocene is divided and showed their distribution by maps. Illustrations of some of the more important vertebrates were thrown on the screen and details of their occurrence were mentioned. The localities at which remains of the larger groups have been found were shown on distribution maps.

### 665TH MEETING

The 665th Meeting was held in the lecture hall of the Cosmos Club March 29, 1924, at 8:05 p.m. with Vice President OBERHOLSER in the chair and 95 persons present.

E. P. KILLIP: *Botanical exploration in Colombia* (illustrated). As a part of a plan for the botanical exploration of northern South America an expedition went to Colombia in 1922 to collect plants and study the distribution of vegetation. Special attention was given to the flora of the Western Cordillera and the western side of the Central Cordillera. In order to study the north-south distribution and to compare the flora of the two ranges, bases were established at northern, central, and southern points on each cordillera.

Plant life in Colombia naturally varies greatly with altitude. Four zones of vegetation may be recognized: (1) Tropical, sea-level to about 5000 feet; (2) subtropical, 5000 to 9500 feet; (3) temperate, 9500 to 12,000 feet; (4) paramo, 12,000 feet to snow line.

Because of the heavy rain-fall on the Pacific coast the forest is here extremely dense, though because of the configuration of the mountains dry "pockets" frequently occur where cacti and other xerophytic plants grow. Palms are particularly striking in the Cauca valley and along the Quindiu trail. Among the characteristic plant groups of the Subtropical and Temperate zones are *Bomarea*, *Monnina*, *Passiflora*, Gesneriaceae, Lobeliaceae, orchids and ferns. Plants of the bleak Panamo Zone are usually brilliantly flowered and densely clothed with hairs. Conspicuous plants of this zone are the frailejones (*Espeletia*), and other composites, lupines, and lycopodiums.

About 23,000 specimens were collected, most of which were dried over charcoal fires. Much of the success of the expedition was due to the assistance given by the Governmental and Departmental officials as well as by private citizens. The hospitality of the Colombian people was greatly appreciated by members of the expedition. Discussed by A. S. HITCHCOCK.

N. A. COBB: *Two Blue Jays—Jack and Jill—and their home life* (illustated). The speaker gave an intimate account, illustrated by colored lantern slides, of the activities of a pair of blue jays that raised a brood of young in a tree close to his house at Falls Church. The ingenious devices to obtain an insight into their home life were described and illustrated by numerous photographs. The paper will appear in "Nature Magazine."

### 666TH MEETING

The 666th meeting was held in the lecture hall of the Cosmos Club April 12, 1924 at 8:05 p.m., with Vice-President ROHWER in the chair and 50 persons present. New members elected: W. W. DIEHL, Dr. W. H. RICH, O. E. SETTE, Miss MARY VAN METER, and Dr. J. R. WEIR.

Under *Short Notes*, M. K. BRADY reported his discovery of a four-toed salamander coiled about its eggs in Rock Creek Park. The species is new to the D. C. fauna.

Dr. T. S. PALMER inquired if members of the Society had observed box turtles this spring. Some captive adults in his possession have not yet emerged, but young ones, which did not bury themselves last fall and had to be pushed into the ground, have come out.—Discussed by A. WETMORE.

Dr. C. W. STILES reported that in experiments carried on by him it has been found that typhoid germs can live in the soil at least 106 days.

A. S. HITCHCOCK (presidential address): (a) *Remarks on the scientific attitude;* (b) *Botanizing in Ecuador* (illustrated); (c) *How to aid the Biological Society.* (*a*) A plea was made to scientists to meet with open-mindedness (the scientific attitude) questions in politics, economics, and religion. (*b*)

Collections were made at Guayaquil and several other places on the Coastal Plain, and at Huigra, Ambato, Urbina, and Quito, on the railroad from Guayaquil to Quito. Trips were made overland to Ibarra and Tulcan to the north, to Portovelo (a gold mine near Zaruma), Loja, and Cuenca to the south, and to Baños and Mera in the Oriente. Pichincha (near Quito) and Chimborazo were visited for alpine plants. About 2000 numbers of flowering plants were obtained. (*c*) The finances of the Society were briefly discussed. (*Author's abstract.*)

### 667TH MEETING

The 667th meeting of the Biological Society was held in the lecture hall of the Cosmos Club April 26, 1924, at 8:00 p.m., with President GIDLEY in the chair and 61 persons present. The President announced the appointment of the following trustees for the permanent funds of the Society: T. S. PALMER (3 years), H. C. OBERHOLSER (2 years), A. S. HITCHCOCK (1 year). New members elected: Dr. ALEXIS M. BAGUSIN, M. W. TALBOT.

Under *Short Notes*, Dr. T. S. PALMER reported that one of his adult box turtles has now come out. When digging their winter holes, he found that box turtles dig out the ground with their hind feet and thus move down gradually backward. Dr. P. B. JOHNSON reported that a box turtle which hibernated under dead leaves in his yard apparently backed into its hole. Dr. E. D. BALL reported that certain western turtles dug in backwards.

M. K. BRADY reported that he had found all three of the local lizards under one log in Fairfax County. After the close of the meeting, specimens of these lizards were exhibited.

A. S. HITCHCOCK inquired whether elephants use the trunk in a right or left-handed fashion. H. C. OBERHOLSER stated that it has been reported that birds always took a right-handed flight into the nest box. E. A. GOLDMAN said that most reindeer in Alaska mill clockwise, except for small groups which mill anti-clockwise. P. B. JOHNSON inquired whether this might be due to a lack of symmetry in the body.

AUSTIN H. CLARK: *Animal flight* (read by H. C. OBERHOLSER). The economic advantages of flight were first described, and the number of the various flying creatures given. The animals that can fly, or at least glide through the air, amount to nearly two-thirds of all the species known, and among land-living animals about three-fourths. These include, in numerical order, insects, birds, mammals, fishes, lizards, snakes and mollusks, with perhaps a crustacean and a frog. The flight of birds was taken up in detail and described, then the flight of bats, the gliding flight of mammals and of reptiles, and the flight of insects. The structures serving for flight were considered. The animals which, without special flying organs, are habitually wafted about by the wind, like many spiders and the young larvae of certain moths, were taken up, followed by those which, like the cobras, the frilled lizard, and many leaping mammals, have broad processes or tufts of long hairs which serve to minimize the danger from a fall by increasing the air-resisting surface. Lastly the flying creatures in the sea were discussed, the flying fishes and the flying squid. The flight of the last named was described from personal experience with them off northwestern Africa; when above the surface of the sea they are easily distinguished from the flying-fishes by the fact that a company always keeps together in close formation, and their flight is shorter. (*Author's abstract.*) Discussed by E. A. GOLDMAN, T. S. PALMER, A. S. HITCHCOCK and H. C. OBERHOLSER.

W. H. RICH: *Migration of salmon in the Alaska Peninsula region* (illustrated). The red salmon fishery located in Bristol Bay and along the Alaska Peninsula is one of the most valuable of the fishery resources of the United States. On account of extensive exploitation they were in real danger of depletion when the Alaska Fishery Reservations were established some two or three years ago. Administration of these is vested in the Secretary of Commerce acting through the Bureau of Fisheries. In order that regulations may be adequately based the Bureau has undertaken an extensive investigation of the various phases of the life history of these fish. Of especial importance has been the extent, direction, and rate of the oceanic migrations of the fish, with particular reference to the relationship of the fish taken in Bristol Bay to those taken near the extremity of the Alaska Peninsula. In an effort to solve this problem the Bureau has, during 1922 and 1923, tagged 14,000 red salmon, mainly in the region south of the peninsula but close to the extremity.

The results of these experiments have shown conclusively that the great bulk of the fish taken near the end of the peninsula and along the southern shore of the peninsula as far east as the Shumagin Islands belong to the Bristol Bay run. Their home streams are located in the Bristol Bay district and they are on their return migration to those streams from which they came, at the time they are taken commercially. Apparently the feeding grounds of these salmon during their life in the ocean is along the continental shelf of the north Pacific. Evidence is available which shows that the fish south of the peninsula pass through Isanotsky strait on their way to Bristol Bay. The rate of travel is approximately 20 miles per day during the early part of the season but this increases during the season until the rate is nearly double this toward the end of the season, the latter part of July.

In addition to the migration to Bristol Bay some of the salmon are bound to local streams along the southern shore of the peninsula and, to a less extent, to local streams along the northern shore. An interesting feature of this local migration is that the fish bound for these local spawning grounds apparently school separately from those bound for Bristol Bay. This is particularly indicated by the fact that in Morzhovoi Bay, the first large indentation of the southern coast of the peninsula east of Isanotsky Strait, the fish tagged along the western and northern shores of the bay were predominately Bristol Bay fish while those tagged along the eastern shore during the latter part of the season went mainly to local spawning grounds to to the eastward. A few of the fish tagged in the region about the Shumagin Islands went eastward as far as Chignik, Kodiak, and Afognak Islands and Cook Inlet. (*Author's abstract.*)

S. F. BLAKE, *Recording Secretary.*

## SCIENTIFIC NOTES AND NEWS

E. F. PHILLIPS, Apiculturist of the Bureau of Entomology, has accepted a position as Professor of Apiculture in the New York State College of Agriculture at Cornell University, Ithaca, N. Y., and assumes his new duties October 1. J. I. HAMBLETON, of the Bureau of Entomology, will have charge of the Bee Culture Investigations of the Bureau.

Dr. F. M. WALTERS, JR., resigned from the Bureau of Standards on June 30 to become Professor of Experimental Physics in the Carnegie Institute Of Technology, Pittsburgh, Pa.

Dr. H. M. AMI, of Ottawa, Canada, a member of this ACADEMY, has just returned home from a five weeks stay in Europe where he attended the British Empire Mining Congress at Wembley. Later he visited Montières, St. Acheul, Cagny, Bovès, Belloy, and other prehistoric sites in the vicinity of Amiens and Abbeville in the Somme valley, and followed up his recent work in Seine and Marne and in the Dordogne country where he obtained further evidence as to life and culture in the New as well as in the Old Stone Age. On his return to Canada Dr. AMI attended the British Association Meeting in Toronto and read two papers: one in Section C (Geology) *Problems in the Palaeozoic Succession of Eastern Canada*, the other in Section H (Anthropology) *On recent discoveries in prehistory.*

Dr. GREGORY BREIT, of the University of Minnesota, joined the staff of the Department of Terrestrial Magnetism, Carnegie Institution of Washington as mathematical physicist, July 1.

Professor H. PITTIER, connected for twenty years with the U. S. Department of Agriculture and now director of the Commercial Museum at Caracas, Venezuela, recently received from the French Government the ribbon of Officier de l'Instruction publique, in recognition of his work on the botany, geography, and ethnology of Central and South America.

The Physics Club of the Bureau of Standards announces a course of 60 lectures by Dr. P. R. Heyl on *The fundamental concepts of physics in the light of modern discovery.* These lectures are to be given at 4:30 p.m. on Mondays and Thursdays of each week beginning September 29. All scientific men in the city who are interested in this course are requested to get in touch with F. M. Defandorf, Secretary of the Physics Club, Bureau of Standards.

X